

-- REMARKS --

The present response replies to an Office Action dated March 17, 2008. Claims 1, 3-6, and 8-10 are currently pending in the present application. In the Office Action, the Examiner rejected claims 1, 3-6, and 8-10 on various grounds. The Applicant responds to each ground of rejection as subsequently recited herein and requests reconsideration of the present application.

35 U.S.C. §103 Rejections

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references when combined must teach or suggest all the claim limitations. See MPEP 2143. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). See MPEP 2143.03. The Applicant respectfully asserts that the cited references fail to teach or suggest all the claim limitations.

A. Claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2003/0222791 to Smalls (the *Smalls* publication).

The Applicant respectfully asserts that the *Smalls* publication fails to teach or suggest all the claim limitations of the rejected claims. The *Smalls* publication fails to disclose, teach, or suggest a traffic light wherein said switch controller (21) is further operable to prevent simultaneous closure of said first electronic switch (32) and said second electronic switch (42), as recited in independent claim 1.

The Examiner noted that the *Smalls* publication does not mention being operable to prevent simultaneous closure of the first and second electronic switches, but asserted that this limitation would be within a routine skill of an artisan and an obvious design choice. The Applicant respectfully disagrees. The modification suggested by the Examiner makes the warning light of the *Smalls* publication inoperable and defeats its purpose.

The *Smalls* publication discloses a new vehicle safety emergency flasher apparatus that automatically operates a flashing light system within, or in the vicinity of, a vehicle or other potential hazard to motorists in oncoming traffic by sensing when there is a vehicle approaching and, thereby, providing added safety and protection for users of the apparatus and for oncoming motorists. See paragraph [0004]. The warning light 10 carries arrays of lights 12. One array 12 is visible from the front of warning light 10 and one is visible from the rear of warning light 10. Above each array 12 is a light sensor 14 that detects the headlights of oncoming vehicular traffic. One sensor 14 faces forward from the front face of warning light 10 and one faces rearward from the rear face of warning light 10. See paragraph [0036]. Both the front and rear arrays 12 operate independently of each other. See paragraph [0040].

The modification suggested by the Examiner makes the warning light of the *Smalls* publication inoperable because preventing simultaneous closure of the first and second electronic switches would prevent the warning light from sensing vehicles coming from the front and rear simultaneously and warning vehicles in both directions. The modification suggested by the Examiner defeats the purpose of the warning light of the *Smalls* publication because the warning light would be unable to provide added safety and protection for users of the apparatus and for oncoming motorists when vehicles approached from two directions.

The *Smalls* publication also teaches away from the modification suggested by the Examiner. Both the front and rear arrays 12 operate independently of each other. See paragraph [0040]. Therefore, the *Smalls* publication teaches that the arrays 12 operate independently, not that operation of one array should prevent operation of the other array, and teaches away from preventing simultaneous closure of said first electronic switch and said second electronic switch as recited in independent claim 1.

Withdrawal of the rejection of claim 1 under 35 U.S.C. §103(a) as being unpatentable over the *Smalls* publication is respectfully requested.

B. Claims 1 and 3-5 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,809,655 to Colby (the *Colby* patent) in view of U.S. Patent No. 6,362,578 to Swanson, *et al.* (the *Swanson* patent).

The Applicant respectfully asserts that the *Colby* patent and the *Swanson* patent, alone or in combination, fail to teach or suggest all the claim limitations of the rejected claims. The *Colby* patent and the *Swanson* patent fails to disclose, teach, or suggest a traffic light wherein said switch controller (21) is further operable to prevent simultaneous closure of said first electronic switch (32) and said second electronic switch (42), as recited in independent claim 1.

The Applicant also respectfully disagrees with the Examiner's assertion that the *Colby* patent discloses first to fifth LED circuits selectively controlled by a single control module. At most, the prior art discussed by the *Colby* patent discloses traffic signals with various numbers and configurations of lamps, but is silent as to the lamps being controlled by a single control module. In a typical installation, several traffic signals are supported by one or more supporting elements and coupled through a single control module including electronics. *See* Figure 4B; column 1, line 43 through column 2, line 4.

The Examiner noted that the *Swanson* patent does not mention that the switch controller is operable to prevent simultaneous closure of the first to third electronic switches, but asserted that this limitation would be within a routine skill of an artisan and an obvious design choice. The Applicant respectfully disagrees. The modification suggested by the Examiner makes the automobile rear combination lamp driver circuit of the *Swanson* patent inoperable and defeats its purpose.

The *Swanson* patent discloses a plurality of arrays 14, 16 and 18 of light emitting diodes, such as the turn, stop and tail LED's, positioned at the rear portion 20 of an automobile. The drive circuit 10 includes the arrays 14, 16, 18 of light emitting diodes 22 and a respective transistor 24, 26, 28. A PWM controller 38 has an output 38b connected to selected transistors for driving selected transistors 26, 28. *See* Figure 1; column 2, line 59 through column 3, line 22.

The modification suggested by the Examiner makes the automobile rear combination lamp driver circuit of the *Swanson* patent inoperable because preventing simultaneous closure of the first and second electronic switches would prevent simultaneous operation of two of the LED arrays. For example, when the transistor 28 was closed to light the tail LEDs, the turn and stop LEDs would be disabled if simultaneous closure were prevented. This would be unsafe and render the automobile rear combination lamp driver circuit inoperable. The modification suggested by the Examiner defeats the purpose of the automobile rear combination lamp driver circuit in reducing the time to light the brake lamp, since the brake lamp would be disabled. *See* column 1, lines 11-19.

Further, the *Swanson* patent is in the art area of driver circuits for LEDs used in the rear combination lights of automobiles, not traffic lights of the Applicant's invention. *See* Figure 1; column 1, lines 4-32; column 2, lines 59-64.

Claims 3-5 depend directly or indirectly from independent claim 1. Therefore, the dependent claims include all the elements and limitations of independent claim 1. The Applicant respectfully submits that dependent claims 3-5 are allowable over the *Colby* patent in view of the *Swanson* patent for at least the same reasons as set forth above with respect to independent claim 1.

The Applicant also submits that the *Colby* patent and the *Swanson* patent fail to disclose, teach, or suggest a traffic light: wherein said switch controller (21) is further operable to prevent simultaneous closure of said second electronic switch (42) and said third electronic switch (52) as recited in amended dependent claim 3; wherein said switch controller (21) is further operable to prevent simultaneous closure of said third electronic switch (52) and said fourth electronic switch (46) as recited in amended dependent claim 4; or wherein said switch controller (21) is further operable to prevent simultaneous closure of said fourth electronic switch (46) and said fifth electronic switch (56) as recited in amended dependent claim 5.

Withdrawal of the rejection of claims 1 and 3-5 under 35 U.S.C. §103(a) as being unpatentable over the *Colby* patent in view of the *Swanson* patent is respectfully requested.

C. Claims 6 and 8-10 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,809,655 to Colby (the *Colby* patent) in view of U.S. Patent Publication No. 2002/0175826 to Hutchison, *et al.* (the *Hutchison* publication).

The Applicant respectfully asserts that the *Colby* patent and the *Hutchinson* publication, alone or in combination, fail to teach or suggest all the claim limitations of the rejected claims. The *Colby* patent and the *Hutchinson* publication fails to disclose, teach, or suggest a traffic light said switch controller (71) is further operable to prevent simultaneous opening of said first electronic switch (81) and said second electronic switch (91), as recited in independent claim 6.

The Applicant also respectfully disagrees with the Examiner's assertion that the *Colby* patent discloses first to fifth LED circuits selectively controlled by a single control module. At most, the prior art discussed by the *Colby* patent discloses traffic signals with various numbers and configurations of lamps, but is silent as to the lamps being controlled by a single control module. In a typical installation, several traffic signals are supported by one or more supporting elements and coupled through a single control module including electronics. *See* Figure 4B; column 1, line 43 through column 2, line 4.

The Examiner noted that the *Hutchison* publication does not mention being operable to prevent simultaneous opening of the first, second, and third electronic switches, but asserted that this limitation would be within a routine skill of an artisan and an obvious design choice. The Applicant respectfully disagrees. The modification suggested by the Examiner makes the warning light of the *Hutchison* publication inoperable and defeats its purpose.

The *Hutchison* publication discloses a reconfigurable LED array having a plurality of LED sets, each LED set adapted to be enabled for a different DC operating voltage. The LED array is configured as four sets of LEDs, one main array and three additional LED arrays. At a lower most specified operating DC voltage, such as 35 volts, only the main LED array is PWM driven. However, as the operating voltage increases to 48 volts, the other three LED arrays are selectively driven to increase light output as the operating voltage increases. In a normal mode of operation, such as at a nominal 48 volts, all LED sets are driven. *See* paragraphs [0006], [0007].

The modification suggested by the Examiner makes the traffic light of the *Hutchison* publication inoperable because preventing simultaneous opening of the first, second, and third electronic switches would prevent the traffic light from selectively driving the three additional LED arrays so that the three additional LED arrays are energized in increasing numbers with increasing voltage. See the table of paragraph [0018]. The modification suggested by the Examiner defeats the purpose of the traffic light of the *Hutchison* publication because the series of LEDs would not be selectively enabled, such that one, two, three or all four of the LED sets can be enabled and pulsed with modulated to achieve a desired light output, even as the DC voltage degrades from a pre-determined specified level, such as 48 volts, all the way down to roughly 29 volts. See the table of paragraph [0008].

The *Hutchison* publication also teaches away from the modification suggested by the Examiner. In a normal mode of operation, such as at a nominal 48 volts, all LED sets are driven. See paragraph [0007]. Therefore, the *Hutchison* publication teaches that all LED sets are driven together, not that opening of one switch should prevent simultaneous opening of any other switch, and teaches away from preventing simultaneous opening of said first electronic switch and said second electronic switch as recited in independent claim 6.

Claims 8-10 depend directly or indirectly from independent claim 6. Therefore, the dependent claims include all the elements and limitations of independent claim 6. The Applicant respectfully submits that dependent claims 8-10 are allowable over the *Colby* patent in view of the *Hutchinson* publication for at least the same reasons as set forth above with respect to independent claim 6.

The Applicant also submits that the *Colby* patent and the *Hutchinson* publication fail to disclose, teach, or suggest a traffic light: wherein said switch controller (71) is further operable to prevent simultaneous opening of said second electronic switch (91) and said third electronic switch (101) as recited in amended dependent claim 8; wherein said switch controller (71) is further operable to prevent simultaneous opening of said third electronic switch (101) and said fourth electronic switch (94) as recited in amended dependent claim 9; or wherein said switch controller (71) is further operable to prevent simultaneous opening of said fourth electronic switch (94) and said fifth electronic switch (104) as recited in amended dependent claim 10.

Withdrawal of the rejection of claims 6 and 8-10 under 35 U.S.C. §103(a) as being unpatentable over the *Colby* patent in view of the *Hutchinson* publication is respectfully requested.

Additional References

Additional references have been provided in the Supplemental Information Disclosure Statement filed herewith. The Applicant respectfully submits that claims 1, 3-6, and 8-10 are allowable over U.S. Patent No. 4,050,834 to Lee and U.S. Patent No. 4,743,897 to Perez because the additional references fail to disclose a traffic light as claimed.

SUMMARY

Reconsideration of the rejection of claims 1, 3-6, and 8-10 is requested. The Applicant respectfully submits that claims 1, 3-6, and 8-10 fully satisfy the requirements of 35 U.S.C. §§102, 103 and 112. In view of the foregoing, favorable consideration and early passage to issue of the present application is respectfully requested.


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Respectfully submitted,
BERND CLAUBERG

PHILIPS INTELLECTUAL PROPERTY
& STANDARDS
P.O. Box 3001
Briarcliff Manor, New York 10510

Robert J. Kraus
Registration No. 26,358
Attorney for Applicant

CARDINAL LAW GROUP
Suite 2000
1603 Orrington Avenue
Evanston, Illinois 60201
Phone: (847) 905-7111
Fax: (847) 905-7113



Frank C. Nicholas
Registration No. 33,983
Attorney for Applicant